

I. AMENDMENTS TO THE CLAIMS:

Kindly amend claims 1-8 as follows.

The following Listing of Claims will replace all prior listing, or versions, of claims in the above-captioned application.

Listing of Claims:

1. (Currently Amended) A method of generating volume data from boundary representation data, comprising the steps of:

(A) inputting the boundary representation data of an object having a surface shape into a computer via external data input means, wherein the boundary representation data inputted comprises three dimensionally shaped data;

(B) converting the boundary representation data so that the boundary representation data is solidified or merged of a boundary line of a plane and converting surface shape into a triangle patch having a phase by data converting means;

(C) dividing a space into rectangular parallelepiped cells whose boundary planes cross one another at right angles to associate each the cell with a triangle to be included in the associated cell by associating means;

(D) dividing the triangle patch having the phase, floating in a space, by cell faces to bring a state in which all the triangles are arranged inside associated cellsthe cell and on a boundary by dividing/arranging means;

(E) integrating ridge lines by ridge line integrating means without changing the phase, and judging whether or not the following conditions are satisfied

- i. there is not any triangle vertex in a cell body or on a cell surface;
- ii. there is only one vertex of the triangle patch on the cell edge; and

iii. a phenomenon does not occur in which the phase changes by
integrating the cutting points;

(F) assigning each triangle and a vertex of the triangle to the associated cell with
reference to index data of the vertex by cell assigning means; and

(G) setting an attribute value of each cell by labeling means.

2. (Currently Amended) The method of generating the volume data from the
boundary representation data according to claim 1, wherein after the ridge line integration by
the ridge line integrating means, the method further comprises the steps of:

checking, by state check means, it is checked whether or not triangle groups
satisfying predetermined conditions decreased as a result of the ridge line integration; satisfy
predetermined conditions by state check means, and

simplifying, by simplifying means, a defective portion is simplified by simplifying
means in a case where the predetermined conditions are not satisfied, and thereafter
performing the ridge line integration is performed again by the ridge line integrating means.

3. (Currently Amended) The method of generating the volume data from the
boundary representation data according to claim 1, wherein the volume data and the triangle
patch having the phase are prepared, and set operations of nonboundary cells, the
nonboundary cell to a boundary cell, and the boundary cell to the boundary cell are
performed based on the connected triangles.

4. (Currently Amended) A storage unit of a computer encoded with a program for
generating volume data, wherein the program causes the computer to execute the steps
of comprising:

~~(A)an external data input step of inputting boundary representation data of an object having a surface shape into a computer, wherein the boundary representation data inputted comprises three dimensionally shaped data;~~

~~(B)a data converting step of converting the boundary representation data so that the boundary representation data is solidified or merged of a boundary line of a plane and converting surface shape into a triangle patch having a phase;~~

~~(C)an associating step of dividing a space into rectangular parallelepiped cells whose boundary planes cross one another at right angles to associate each the cell with a triangle to be included in the associated cell;~~

~~(D)a dividing/arranging step of dividing the triangle patch having the phase, floating in a space, by cell faces to bring a state in which all the triangles are arranged inside associated cellsthe cell and on a boundary;~~

~~(E)a ridge line integrating step of integrating ridge lines without changing the phase, and judging whether or not the following conditions are satisfied~~

~~i. there is not any triangle vertex in a cell body or on a cell surface;~~
~~ii. there is only one vertex of the triangle patch on the cell edge; and~~
~~iii. a phenomenon does not occur in which the phase changes by integrating the cutting points;~~

~~(F)a cell assigning step of assigning each triangle and a vertex of the triangle to the associated cell with reference to index data of the vertex; and~~

~~(G)a labeling step of setting an attribute value of each cell.~~

5. (Currently Amended) The storage unit of a computer encoded with a program for generating the volume data according to claim 3, wherein after the step of ridge line

~~integration the program causes the computer to execute the further steps of further~~
~~comprising, after the ridge line integrating step:~~

~~a state check step of checking whether or not triangle groups satisfying~~
~~predetermined conditions decreased as a result of the ridge line integration satisfy~~
~~predetermined conditions; and~~

~~a simplifying step of simplifying a defective portion in a case where the~~
~~predetermined conditions are not satisfied, and thereafter performing~~
~~wherein the ridge line integration ~~integrating step~~ is thereafter performed again.~~

6. (Currently Amended) The storage unit of a computer encoded with a program
for generating the volume data according to claim 4, wherein the volume data and the triangle
patch having the phase are prepared, and set operations of nonboundary cells, the
nonboundary cell to a boundary cell, and the boundary cell to the boundary cell are
performed based on the connected triangles.

7. (Currently Amended) The method of generating the volume data from the
boundary representation data according to claim 2, wherein the volume data and the triangle
patch having the phase are prepared, and set operations of nonboundary cells, the
nonboundary cell to a boundary cell, and the boundary cell to the boundary cell are
performed based on the connected triangles.

8. (Currently Amended) The storage unit of a computer encoded with a program for
generating the volume data according to claim 5, wherein the volume data and the triangle
patch having the phase are prepared, and set operations of nonboundary cells, the

nonboundary cell to a boundary cell, and the boundary cell to the boundary cell are
performed based on the connected triangles.